RECENT STATUS OF *HELIAMPHORA*

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The Guiana Highlands, south of the 1600 mile Orinoco River system in the Gran Sabana region of southeast Venezuela, is a sparsely inhabited area of dense jungles and high sandstone table mountains or mesas. Locally, they are called tepuis and these massive flat-topped mesas rise vertically from the jungle floor usually with sheer rock faces with heights exceeding 2,000 meters (6,000 feet). The "Lost World" consists of 400,000 sq. miles (1 million sq. km.), a land so remote that some portions of it were only recently explored in the early 1950's and much of it remains unexplored. It's a land noted for the highest waterfall in the world — namely Angel Falls with water cascading 3,212 feet! Nearby, the mighty Amazon River flows 4000 miles into the sea after draining this vast area known for its high annual rainfall exceeding 100 in or 250 cm per year. The tepuis were formed millions of years ago as a result of uplifting and consequent rapid erosion by the numerous rivers separating the sandstone mesas.

Transportation is mainly by canoe with outboard motor with the rivers as the highways in this land. However, your destination is confined to the lowland jungles since the high vertical cliff faces of many mesas are unbroken and climbing them is difficult or nearly impossible. As a result, what flora or fauna inhabit the top of these mesas is largely unknown except for a few instances where helicopters were used. *Heliamphora* are confined to the tepui growing in acid waterlogged soils.

Tepuis can be considered as islands dotting the jungle landscape. Therefore, the flora of each tepui is isolated and dispersal of seed from one mesa top to another top is virtually non-existent. Summit species do not grow or establish themselves at lower altitudes so that plants growing on the mesas have narrow generic and specific endemism.

The first *Heliamphora* species (*nutans*) was collected by the Schomburgk brothers in 1839 from the 9,024 foot Mt. Roraima. It was not until 90 years later in 1928, that the zoologist and explorer G. H. Tate led an expedition to Mt. Duida (7,200 ft.) and collected

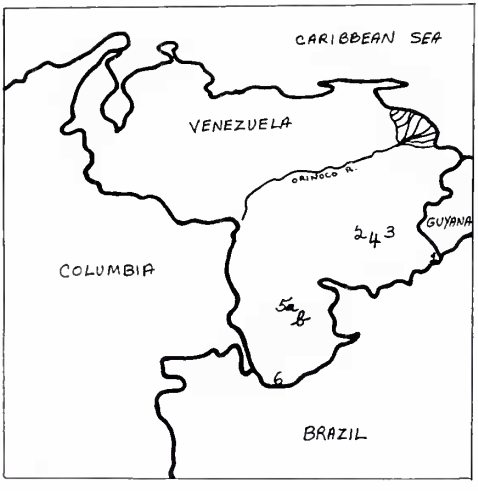

FIG. 1

three more species which were described by H. A. Gleason as *H. macdonaldae, H. tatei* and *H. tyleri.* Subsequently in 1937, Tate collected from Mount Auyántepui another species namely, *H. minor.* Then, it was not until 1951, when Julian Steyermark collected and described specimens of *H. heterodoxa* from the Mount Ptari-tepui. Thus, six species of *Heliamphora* were proposed on the basis of chiefly pitcher differences.

Bassett Maguire published a report on *Heliamphora* in 1978 which described six species of *Heliamphora* but two of the above species were determined to be really a single species. So, *H. macdonaldae* and *H. tyleri* are now incorporated under the species of *H. tatei.* In addition, two new species were proposed, namely *H. ionasi* (front cover this issue) and *H. neblinae* (back cover this issue). The latter plant is actually found near the borderline of Brazil and Venezuela and in fact is found on both sides of the border. Dr. Gleason had too few specimens of the species from Mt. Duida to make a good decision on defining the species that were present at that time.

Maguire looked at 15 characters of each plant including all structures of the flower and seed under scanning electron microscopy and light microscopy. Based on this information and other facts from ecology and morphology, he came to the conclusion that there were six distinct species as follows:

1) *H. nutans* Bentham, Mt. Roraima, Venezuela (1840) (9,094 ft.)
2) *H. minor* Gleason, Mt. Auyántepui, Venezuela (1939) (9,688 ft.)
3) *H. heterodoxa* Steyermark, Mt. Ptari-tepui, Venezuela (1951)
   a) var. *heterodoxa*
   b) var. *glabra*
   c) var. *exappendiculata* (no appendage on leaf)
4) *H. ionasi* Maguire, sp nov, Mt. Ilu-tepui, Venezuela (1952)
5) *H. tatei* Gleason, Mts. Huachamacari (a) and Duida (b), Venezuela (1928)
   a) var. *tatei*
   b) var. *macdonaldae*
6) *H. neblinae* Maguire, sp nov, Cerro de la Neblina, (9,888 ft.) Venezuela (1953)
   a) var. *neblinae*
   b) var. *viridis*
   c) var. *parva* (rose petals)

It is interesting that one species namely *H. tatei* var. *tatei* is the only dendroid species (tree-like) and forms dense populations over extensive moor-like savannas. Here the plants uniformily reach a height of 1-1.5 meters (3-4 feet). However, in marginal areas or in open sparse woodlands certain individuals may become partly scandent (climbing without tendrils) and will reach a height of 4 meters (13 feet)!

H. ionasi was considered by Maguire to be the most impressive of all the *Heliamphora* species especially under field conditions. It was named after a co-discoverer, Jonah Boyan who accompanied the author on his trip. The *H. neblinae* species was named after the area where it grows, namely on the southern Venezuelan-Brazilian borderline.

Finally, above numbered species correspond with location on map. (Fig. 1)

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Heliamphora tatei

Courtesy Dr. Bassett Maguire and the New York Botanical Garden.
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Heliamphora tatei habitat

Courtesy Dr. Bassett Maguire and the New York Botanical Garden.
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Heliamphora minor

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